

From the INTERNATIONAL BUREAU

**PCT**

NOTIFICATION OF TRANSMITTAL  
OF COPIES OF TRANSLATION  
OF THE INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY  
(CHAPTER I OR CHAPTER II  
OF THE PATENT COOPERATION TREATY)  
(PCT Rules 44bis.3(c) and 72.2)

To:

TAKINO, Hideo  
4th Floor, Hiroo SK bldg.  
36-13, Ebisu 2-chome  
Shibuya-ku  
Tokyo 150-0013  
JAPON



Date of mailing (day/month/year) 29 June 2006 (29.06.2006)	
Applicant's or agent's file reference E01943WO	86850
International application No. PCT/JP2004/014258	IMPORTANT NOTIFICATION
Applicant	International filing date (day/month/year) 29 September 2004 (29.09.2004)
DENKI KAGAKU KOGYO KABUSHIKI KAISHA et al	

## 1. Transmittal of the translation to the applicant.



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

## 2. Transmittal of the copy of the translation to the designated or elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

None

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EG, EP, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

## 3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland	Authorized officer  Masashi Honda
Facsimile No.+41 22 740 14 35	Facsimile No.+41 22 338 70 10

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference E01943WO	<b>FOR FURTHER ACTION</b>	See item 4 below
International application No. PCT/JP2004/014258	International filing date ( <i>day/month/year</i> ) 29 September 2004 (29.09.2004)	Priority date ( <i>day/month/year</i> ) 03 October 2003 (03.10.2003)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237.		
Applicant DENKI KAGAKU KOGYO KABUSHIKI KAISHA		

1.	This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 <i>bis</i> .1(a).																								
2.	This REPORT consists of a total of 6 sheets, including this cover sheet.  In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.																								
3.	<p>This report contains indications relating to the following items:</p> <table style="width: 100%;"> <tr> <td style="width: 10%; text-align: center;"><input checked="" type="checkbox"/></td> <td style="width: 20%;">Box No. I</td> <td style="width: 70%;">Basis of the report</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td style="text-align: center;"><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td style="text-align: center;"><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application
<input checked="" type="checkbox"/>	Box No. I	Basis of the report																							
<input type="checkbox"/>	Box No. II	Priority																							
<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability																							
<input type="checkbox"/>	Box No. IV	Lack of unity of invention																							
<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement																							
<input type="checkbox"/>	Box No. VI	Certain documents cited																							
<input type="checkbox"/>	Box No. VII	Certain defects in the international application																							
<input checked="" type="checkbox"/>	Box No. VIII	Certain observations on the international application																							
4.	The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).																								

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No. +41 22 740 14 35	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Date of issuance of this report 20 June 2006 (20.06.2006)</td> </tr> <tr> <td style="padding: 2px;">Authorized officer  <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Masashi Honda</div></td> </tr> <tr> <td style="padding: 2px;">Telephone No. +41 22 338 70 10</td> </tr> </table>	Date of issuance of this report 20 June 2006 (20.06.2006)	Authorized officer  <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Masashi Honda</div>	Telephone No. +41 22 338 70 10
Date of issuance of this report 20 June 2006 (20.06.2006)				
Authorized officer  <div style="text-align: center; font-weight: bold; font-size: 1.2em;">Masashi Honda</div>				
Telephone No. +41 22 338 70 10				

# PATENT COOPERATION TREATY

TRANSLATION

From the  
INTERNATIONAL SEARCHING AUTHORITY

## PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing  
(day/month/year)

Applicant's or agent's file reference:

**E01943WO**

**FOR FURTHER ACTION**

See paragraph 2 below

International application No.

**PCT/JP2004/014258**

International filing date (day/month/year)

**29.09.2004**

Priority date (day/month/year)

**03.10.2003**

International Patent Classification (IPC) or both national classification and IPC

Applicant

**DENKI KAGAKU KOGYO KABUSHIKI KAISHA**

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP

Authorized officer

Facsimile No.

Telephone No.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/014258

Box No. 1 Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.  
☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
  - a. type of material  
☐ a sequence listing  
☐ table(s) related to the sequence listing
  - b. format of material  
☐ in written format  
☐ in computer readable form
  - c. time of filing/furnishing  
☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.  
PCT/JP2004/014258

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability:  
citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2, 3, 5-8	YES
	Claims	1, 4, 9	NO
Inventive step (IS)	Claims	3, 6	YES
	Claims	1, 2, 4, 5, 7-9	NO
Industrial applicability (IA)	Claims	1-9	YES
	Claims		NO

2. Citations and explanations:

Document 1: JP, 11-61555, A  
Document 2: JP, 10-168647, A  
Document 3: JP, 6-346309, A

Claims 1 and 4

Document 1 does not describe values of the arithmetic average roughness and the maximum height of a polyvinyl chloride fiber in the longitudinal direction, but according to the properties in Table 2, the glossiness state of the fiber is "(semigloss state): the surface is smooth, and has a slightly blurred gloss, thus showing a semigloss state" (see paragraph [0050]), and for the state of feeling, "the surface is smooth and has a free-flowing feeling" (see paragraph [0051]). Therefore, these states are consistent with the state of gloss in which "the fiber surface is smooth and has a reduced gloss" and the state of feeling in which there is a free-flowing feeling", which are achieved by the arithmetic average roughness of 0.18 to 0.38  $\mu\text{m}$  and the maximum height of 0.5 to 3.5  $\mu\text{m}$  in this application. Thus, as long as the fiber of the claims and the fiber of document 1 are each a polyvinyl chloride fiber, and they are consistent in gloss and feeling, it is considered that the shape of the fiber surface is comparable and the values of the arithmetic average roughness and the maximum height are consistent with those of the invention described in document 1.

Use of a hydrotalcite heat stabilizer and a zeolite heat stabilizer as a heat stabilizer is described in paragraph [0025], and it is also described that the amount of the heat stabilizer is preferably 0.5 to 5.0 parts by weight based on 100 parts by weight of vinyl chloride mixture.

Claim 9

The depth of an introduction portion, the length of one side of a flat shape of a discharge portion, and the length of the discharge portion in paragraph [0021] of document 3 correspond to the thickness of an introduction portion, the diameter (D) of a nozzle hole, and the length (L) of a land, respectively, and dimensions overlap. The value of the final introduction angle to the nozzle hole, which is 20° to 90°, is a normal value. A possible use for polyvinyl chloride is disclosed in paragraph [0022].

Thus, the subject matters of these claims do not appear to be novel.

Claim 2

A so-called modified cross section is a well-known and commonly-used sectional form (document 2) and a person skilled in the art could have easily employed this cross section in document 1. Thus, the subject matter of claim 2 does not appear to involve an inventive step.

Claims 5, 7 and 8

The nozzle is a normal nozzle described in document 3 as described above, and the discharge

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/014258

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

rate per unit nozzle hole is a matter of design variation that could be optimized as required by a person skilled in the art.

Since it is described in comparative examples 1-4 in this application that "a vinyl chloride fiber for artificial hair was obtained in the same manner as in example 1 described above except that...", melt spinning is performed under the conditions of L/D of the nozzle of 3, the thickness of the nozzle introduction portion of 5 mm, the final introduction angle of 50° and the discharge rate of 125 g/h in any of the comparative examples. Therefore, each comparative example meets all the conditions of claims 5-8, but the obtained fiber is poor in gloss, feeling and the like. Since the technical scope of the subject matters of the claims is a method for producing a vinyl chloride fiber for artificial hair which does not achieve a desired performance, the subject matters of the claims do not appear to involve an inventive step.

Claims 3 and 6

The subject matters of the claims appear to be novel, since none of the documents describes that the amount of higher fatty acid ester lubricant (a) is 0.3 to 3.0 parts by mass, the amount of polyethylene lubricant (b) is 0.3 to 1.5 parts by mass and the blended ratio of (a) and (b): (a)/(b) is 0.5 to 4. Furthermore, they appear to involve an inventive step, since the blending is not suggested in any of the documents.

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/014258

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

i) In the claims, the discharge rate per unit nozzle hole is defined, but the sectional area of the nozzle as a premise is not defined. For the sectional area of the nozzle, values are included in the subject matters of the claims, but support by disclosure in the specification in the sense of PCT Article 6 is not sufficient to say that the surface state of the fiber is determined only by the discharge rate per unit nozzle hole totally independently of the sectional area of the nozzle.

ii) Since it is described in comparative examples 1-4 in this application that "a vinyl chloride fiber for artificial hair was obtained in the same manner as in example 1 described above except that...", melt spinning is performed under the conditions of L/D of the nozzle of 3, the thickness of the nozzle introduction portion of 5 mm, the final introduction angle of 50° and the discharge rate of 125 g/h in any of the comparative examples. Therefore, each comparative example meets the production conditions of claims 5-8 and the condition for the nozzle shape in claim 9, but the obtained fiber is poor in gloss, feeling and the like.

Thus, the subject matters of claims 5-9 include the case where a vinyl chloride fiber for artificial hair having a desired performance can be obtained and the case where such a fiber cannot be obtained, and the applicant demonstrates that a vinyl chloride fiber for artificial hair having a gloss like that of natural hair cannot be obtained just by meeting the requirement described in each claim. Thus, the subject matters of claims 5-9 are not supported by disclosure in the specification in the sense of PCT Article 6.